UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 10 2013

REPLY TO THE ATTENTION OF:

E-19J

Cliff Whyte
NEPA Compliance Officer
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
Morgantown, West Virginia 26507

Re: Draft Environmental Impact Statement, FutureGen 2.0 Project, Morgan County, Illinois – CEQ # 20130115

Dear Mr. Whyte:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement (EIS) for the FutureGen 2.0 Project in Morgan County, Illinois. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

The Department of Energy (DOE) is proposing to provide $1 billion in financial assistance to the FutureGen Industrial Alliance (the Alliance) to upgrade a coal-fired power plant with oxy-combustion and carbon capture technologies and to construct a 30-mile pipeline to transport the captured carbon to injection wells. The captured carbon dioxide (CO_2) would be injected into a geologic formation for permanent storage. Ultimately, the project will store approximately 24 million tons of CO_2 over the 20-year operating period.

Based on suitability and availability of the site, the Meredosia Energy Center (Meredosia) in Meredosia, Illinois has been selected by the Alliance for the Oxy-Combustion Large Scale Test site. Other than the no-action alternative, no alternatives to the oxy-combustion site are analyzed in the Draft EIS. Based on geological and other criteria, a 5,300-acre site in Morgan County was selected as the CO_2 study area; exact locations of the injection wells have not been identified in the Draft EIS, but have been identified in the underground injection control (UIC) permit applications. Other than the no-action alternative, no alternatives to the injection area are

analyzed in the Draft EIS. In addition to the no-action alternative, two pipeline routes are analyzed in the Draft EIS, the northern route and the southern route.

The proposed project will require a Class VI UIC permit under the Safe Drinking Water Act for each of the four proposed injection wells. Class VI wells are for the injection of CO_2 into underground geologic formations. The permit applications for the proposed project are currently under review by EPA. Therefore, we reserve the right to provide additional comments during the UIC permit process.

Based on the provided materials, we have rated the proposed project and Draft EIS as **LO - Lack of Objections.** However, we recommend several mitigation measures that would improve the proposed project. We also identify some areas where additional information would benefit review of the Final EIS. A summary of our rating system is enclosed.

Air Quality

The modeling discussion on pages 3.1-21 through 3.1-23 does not include fine particulate matter ($PM_{2.5}$) emissions. The document included modeling for other criteria pollutants, but the modeling that was done for $PM_{2.5}$ was not included.

> **Recommendation:** The Final EIS should include the analysis of $PM_{2.5}$ emissions as a result of the project.

The discussion on page 3.1-27 regarding impacts to Prevention of Significant Deterioration (PSD) increments under the Clean Air Act (CAA) suggests that a PSD increments analysis has been conducted. However, there is no conclusion or discussion of how the impacts of the project would avoid an exceedance of PSD increment levels in the impact area.

> **Recommendation:** The results of the PSD increments analysis should be discussed in the Final EIS.

The Alliance has submitted a CAA construction permit to Illinois EPA. We note that the construction permit application presents an accounting of the reduction of greenhouse gases (GHG) as a result of the shutdown of the existing boilers at Meredosia. The Draft EIS includes a discussion on emissions of GHGs and applicability of PSD on pages 3.2-11 through 3.2-14. This discussion states that the proposed project will result in an increase in emissions of GHGs by more than 150,000 tons per year (TPY) of CO_2-eq[1]. The significance level that would trigger PSD applicability for GHGs is 75,000 TPY of CO_2-eq. The Draft EIS concludes that the project will not trigger PSD, but does not include a complete explanation of how the contemporaneous decreases (from the shutdowns) will result in a net emissions increase that will not be considered significant for PSD.

[1] CO_2-eq = CO_2 equivalent

Recommendation: The Final EIS should include a discussion of the contemporaneous emission decreases of GHGs generated from the shutdown of existing boilers and other emission units at the Meredosia site. The discussion should include the net emission increases of GHGs similar to Table 3.1-20 on criteria pollutants.

Finally, EPA commends the Alliance and DOE for already committing to several diesel reduction measures as listed in Table 4.2-1. The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential occupational carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues.

Recommendation: Although every construction site is unique, common actions can reduce exposure to diesel exhaust. EPA recommends that the Alliance and DOE commit to the following actions during construction in the Final EIS and Record of Decision (ROD):

- Using low-sulfur diesel fuel (15 parts per million sulfur maximum) in construction vehicles and equipment.
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Positioning the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Using catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Ventilating wherever diesel equipment operates indoors at the Meredosia and injection well sites. Roof vents, open doors and windows, roof fans, or other mechanical systems help move fresh air through work areas. As buildings under construction are gradually enclosed, remember that fumes from diesel equipment operating indoors can build up to dangerous levels without adequate ventilation
- Attaching a hose to the tailpipe of diesel vehicles running indoors and exhaust the fumes outside, where they cannot re-enter the workplace. Inspect hoses regularly for defects and damage.
- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintaining diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.

- Reducing exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Purchasing new vehicles that are equipped with the most advanced emission control systems available.
- Using electric starting aids such as block heaters with older vehicles to warm the engine reduces diesel emissions.
- Using respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number. Never use paper masks or surgical masks without NIOSH approval numbers.

Aquatics Resources

EPA has received and begun reviewing the UIC permit applications for the injection wells. The language in the Draft EIS suggests that the permit applications have not yet been submitted. EPA expects this language to be updated in the Final EIS to reflect that the permit applications have been received by EPA.

Further, the language in the Draft EIS suggests that specific locations have not yet been identified within the storage area for siting the injection wells and auxiliary facilities. Based on EPA's initial review of the permit application, it appears that four injection wells are proposed for specific sites.

> **Recommendation:** The Final EIS should be updated to reflect that locations and configuration of the injection wells and auxiliary facilities have been identified. Any impacts as a result of siting (e.g., wetlands) should also be disclosed.

EPA commends the Alliance and DOE for committing to directional drilling or jack and bore tunneling under streams, wetlands, and other features. We note that dry trenching would only be employed for crossing narrow intermittent and ephemeral stream channels devoid of water at the time of construction.

Green Infrastructure

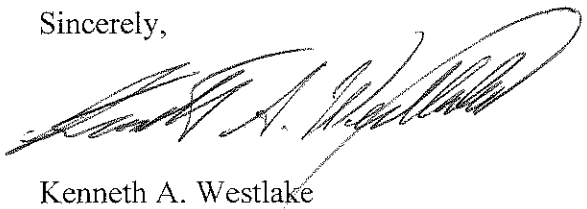
EPA commends the Alliance and DOE for committing to Leadership in Energy and Environmental Design (LEED) certified building at the new facilities. EPA also commends the plans for permeable pavers at the training and supporting facilities at the CO_2 injection well site. We note that only the overflow parking lot at the injection site would use pervious pavement and

the rest of the parking lot would be asphalt. New or reconstructed roads at Meredosia would be asphalt or gravel-based.

> **Recommendations:** EPA recommends the Final EIS detail why some of the new or reconstructed roads or parking lots are not proposed to be pervious pavement at the Meredosia and the injection sites. For these areas that cannot be constructed of pervious pavement, EPA recommends other materials be considered, including reclaimed aggregate or glassphalt. Selection of material(s) should be identified in the Final EIS. We also recommend consideration of bio-diesel generators or solar power be incorporated into the plans at the surface facilities at the injection well site. Incorporation of renewable energy sources should be detailed in the Final EIS.

Thank you in advance for your consideration of our comments to reduce impacts to human health and the environment. Please send us a copy of the Final EIS and ROD once they become available. If you have any questions, please contact me or Elizabeth Poole of my staff at 312-353-2087 or poole.elizabeth@epa.gov.

Sincerely,



Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: Summary of EPA's Rating System

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment